Pandemic Planning Assumptions

1.1. Planning Assumptions

1.1.1. Susceptibility to the pandemic influenza virus will be universal.

1.1.2. Efficient and sustained person-to-person transmission signals an imminent pandemic.

1.1.3. The clinical disease attack rate will likely be 30% or higher in the overall population during the pandemic. Illness rates will be highest among school-aged children (about 40%) and decline with age. Among working adults, an average of 20% will become ill during a community outbreak.

1.1.3.1. Some persons will become infected but not develop clinically significant symptoms. Asymptomatic or minimally symptomatic individuals can transmit infection and develop immunity to subsequent infection.

1.1.4. Of those who become ill with influenza, 50% will seek outpatient medical care.

1.1.4.1. With the availability of effective antiviral drugs for treatment, this proportion may be higher in the next pandemic.

1.1.5. The number of hospitalizations and deaths will depend on the virulence of the pandemic virus. Estimates differ about 10-fold between more and less severe scenarios. Two scenarios are presented based on extrapolation of past pandemic experience (Table 1). Planning should include the more severe scenario.

1.1.5.1. Risk groups for severe and fatal infection cannot be predicted with certainty but are likely to include infants, the elderly, pregnant women, and persons with chronic medical conditions.

1.1.6. Rates of absenteeism will depend on the severity of the pandemic.

1.1.6.1. In a severe pandemic, absenteeism attributable to illness, the need to care for ill family members, and fear of infection may reach 40% during the peak weeks of a community outbreak, with lower rates of absenteeism during the weeks before and after the peak.

1.1.6.2. Certain public health measures (closing schools, quarantining household contacts of infected individuals, “snow days”) are likely to increase rates of absenteeism.

1.1.7. The typical incubation period (interval between infection and onset of symptoms) for influenza is approximately 2 days.

1.1.8. Persons who become ill may shed virus and can transmit infection for up to one day before the onset of illness. Viral shedding and the risk of transmission will be greatest during the first 2 days of illness. Children usually shed the greatest amount of virus and therefore are likely to post the greatest risk for transmission.

1.1.9. On average, infected persons will transmit infection to approximately two other people.

1.1.10. In an affected community, a pandemic outbreak will last about 6 to 8 weeks.

1.1.11. Multiple waves (periods during which community outbreaks occur across the country) of illness could occur with each wave lasting 2-3 months. Historically, the largest waves have occurred in the fall and winter, but the seasonality of a pandemic cannot be predicted with certainty.

Table 1. Number of Episodes of Illness, Healthcare Utilization, and Death Associated with Moderate and Severe Pandemic Influenza Scenarios*

Characteristic	Moderate (1958/68-like)	Severe (1918-like)
Illness	90 million (30%)	90 million (30%)
Outpatient medical care	45 million (50%)	45 million (50%)
Hospitalization	865,000	9,900,000
ICU care	128,750	1,485,000
Mechanical ventilation	64,875	745,500
Deaths	209,000	1,903,000

*Estimates based on extrapolation from past pandemics in the United States. Note that these estimates do not include the potential impact of interventions not available during the 20th century pandemics.